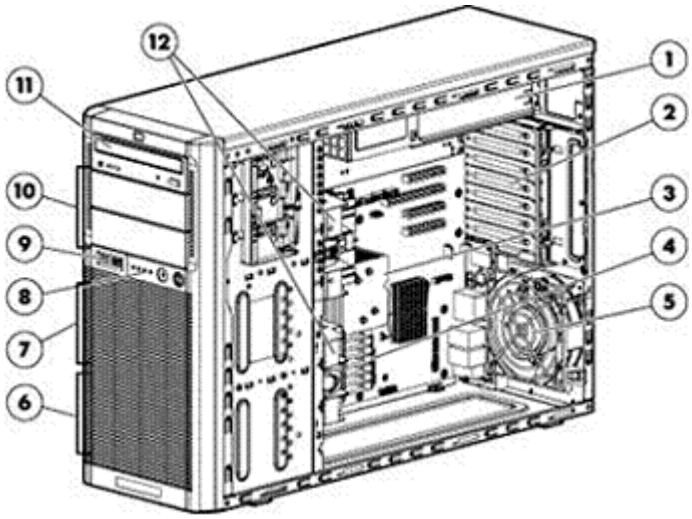
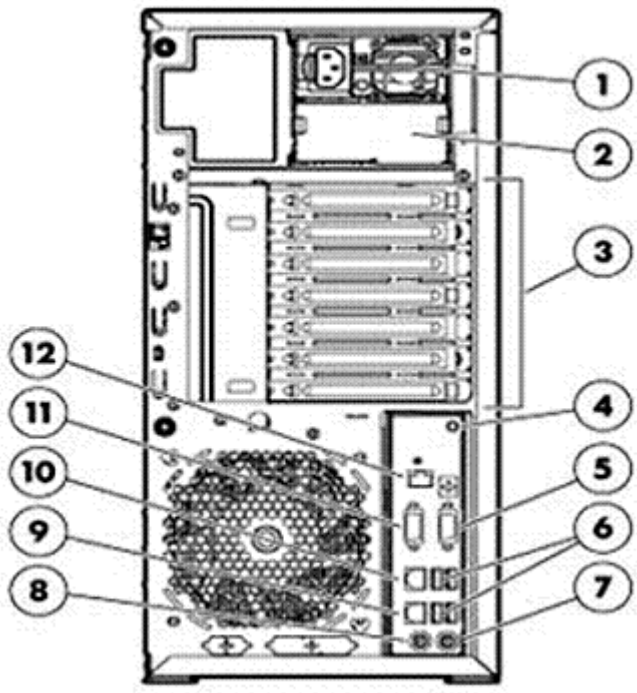
Overview

Performance and manageability to scale your business. The HP ProLiant ML330 G6 is a new dual processor tower platform which built on the latest Intel Xeon processors with QPI technology to create a unique system architecture. This unique architecture enables you to scale your business as needed and allows you to improve the efficiency of how you spend your IT dollars. ML330 G6 not only delivers excellent performance with the latest technology but it also incorporates the industry's most powerful embedded management technology with the HP Integrated Lights-Out 2 (iLO 2) for ProLiant controller, allowing you to manage servers anytime and anywhere.





Front View:

1. Power supply
2. Expansion slots
3. 1st Processor socket
4. Nine DIMM slots (for 1st processor)
5. Rear System Fan
6. Hard drive bays 5-8
7. Hard drive bays 1-4
8. LED indicators and power button
9. USB connectors (2)
10. Removable Media Bays
11. Optical drive bays
12. Front System Fans

Rear View:

1. Power supply 1
2. Power supply (blank) (for Redundant Optional)
3. Expansion slots
4. UID button/LED
5. Video ports
6. Four USB ports
7. PS/2 Keyboard port
8. PS/2 Mouse port
9. Network port 1(shared iLO management port)
10. Network port 2
11. Serial port
12. Dedicated iLO management port (optional)

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	Six-Core Processors Intel® Xeon® Processor X5650 (2.66 GHz, 12MB L3 Cache, 95W,DDR3-1333, HT, Turbo 1/1/2/2/3/3) Quad-Core Processors Intel® Xeon® Processor E5640 (2.66 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo NA/1/1/2/2) Intel® Xeon® Processor E5630 (2.53 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo NA/1/1/2/2) Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80W, DDR3-1066, HT, Turbo NA/1/1/2/2) Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5507 (2.26 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor W3540 (2.93 GHz, 8MB L3 Cache, 130W, DDR3-1066, HT, Turbo 1/1/1/2) Intel® Xeon® Processor W3520 (2.66 GHz, 8MB L3 Cache, 130W, DDR3-1066, HT, Turbo 1/1/1/2) Dual-Core Processors Intel® Xeon® Processor E5503 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor W3505 (2.53 GHz, 4MB L3 Cache, 130W, DDR3-1066) Intel® Xeon® Processor W3503 (2.40 GHz, 4MB L3 Cache, 130W, DDR3-1066) NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology. NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active. NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. NOTE: For the Intel 5500 and 5600 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.
Cache Memory One of the following depending on Model	12MB (1x 12MB) level 3 cache NOTE: For processors X5600 and E5600. 8MB (1 x 8MB) Level 3 cache NOTE: For processors E5540/E5530/E5520/W3540/W3520. 4MB (1 x 4MB) Level 3 cache NOTE: For processors E5506/E5504/E5502/W3505/W3503.

Standard Features

Chipset	Intel® 5500 Chipset NOTE: For more information regarding Intel® chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.
Upgradeability	Upgradeable to 2 processors (4 or 8 or 12 cores)
Memory Protection	Mirroring Lock-step mode Advanced ECC Online Spare (Requires X5600 or E5600 processor family) NOTE: Xeon W3500 processor family does not support any of above advanced features.

Memory
One of the following depending on model

Type	DDR3 Registered (RDIMM) and Unbuffered (UDIMM)
Standard (Performance)	6GB (3 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
Standard (Base Models)	4GB (2 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
Standard (Entry Models)	2GB (1 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
Maximum (RDIMM)	192GB (18 x 8GB) for Registered Memory configurations
Maximum (UDIMM)	48GB (12x 2GB) for Unbuffered Memory configurations

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. Please see the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.
NOTE: If only one processor is installed, only half the DIMM slots are available

Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter

Expansion Slots

NOTE: Four total expansion slots. One (1) PCI-Express x8 Gen1 (x1 speed); One (1) PCI-Express x16 Gen2 (x16 speed); Two (2) PCI-Express x8 Gen2 (x4 speed). Optional PCI-X Expander provides additional two (2) 64-bit/100-MHz PCI-X slots by using a single PCI Express slot (only on slot 5).

Expansion Slot #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
6	PCI Express Gen2	x4	x8	4	Standard Height/ Half Length	
5	PCI Express Gen2	x4	x8	10	Standard Height/ Half Length	
4	PCI Express Gen2	x16	x16	13	Standard Height/Length	
3	PCI Express Gen1	x1	x8	7	Standard Height/Length	

Standard Features

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number
** Indicates the number of physical electrical lanes running to the connector.

Storage Controller	Entry Models	Non hot plug model with HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
	Base Models	Hot plug SAS model integrated HP Smart Array P410/Zero memory SAS Controller (RAID 0/1/1+0) Hot plug SATA model integrated HP Smart Array B110i SATA RAID controller hot plug advanced key
	Performance Models	Hot plug SATA model integrated HP Smart Array B110i SATA RAID controller hot plug advanced key
	Available upgrades: 256MB, 512MB with BBWC, 512MB with FBWC, 1G with FBWC, Battery kit upgrade (for the 256MB cache), and Smart Array Advanced Pack (SAAP)	

Internal Storage Devices	Diskette Drive	None
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Hard Drives	Hot Plug Model: None ship standard
	One of the following depending on Model	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD

Maximum Internal Storage	Hot Plug LFF SATA	16TB	8 x 2TB
	Hot Plug LFF SAS	16TB	8 x 2TB

Interfaces	Serial	1
	Network RJ-45	3 (1 dedicated for HP Integrated Lights-Out 2 (iLO 2)
	Keyboard	1
	Pointing Device (Mouse)	1
	Graphics	1
	SD Slot	1 (internal)
	USB 2.0 Ports	8 (2 front, 4 rear, 2 internal) NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.

Standard Features

Industry Standard Compliance	ACPI V2.0 Compliant PCI-Express Gen2 PXE Support WOL Support PCI-X 1.0a Compliant Microsoft® Logo certifications USB 2.0
Server Power Cords	NOTE: If customers require a local power cord, they can check the power cord matrix for the appropriate county specific sku. Please see the following power cord matrix for details: http://www.hp.com/go/powercordmatrix
Common Slot Power Supplies	(1) 460W Non-Hot Plug, Non-redundant Power Supply It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your need. The HP Power Advisor is located at www.hp.com/go/hppoweradvisor HP has a new design for ProLiant power supplies. The new Common Slot (CS) Power Supply provides the customer with commonality in power supplies across multiple platforms to save on the cost of spares and allows HP to offer multiple power solutions to fit the customers' needs. Many HP ProLiant Servers come with or are compatible with high-efficiency HP CS Power Supplies. These power supplies are designed to provide high-efficiency power without degrading performance of the ProLiant server. HP CS Power Supplies options for this server have efficiency ratings up to 92%. There are three Right Size power options available, depending on the configuration of your server. To make sure you select the correct power supply to meet your configuration, we suggest that you use the HP Power Advisor to decide the "Right-Size" for your configuration. All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant. HP's ProLiant CS Power supplies (750W) meet multiple Energy Efficiency Initiatives, including Climate Savers Computing Initiative GOLD, ECOS Consulting 80PLUS GOLD and they meet the standard specifications for Energy Star for Servers Power Supply requirements.
System Fans	3 fans ship standard, 4 fans total supported (optional (1) redundant fan) NOTE: Does not include power supply or processor heat sink fans. Processor heat sink fans packed in processor kit. NOTE: There are two fans packed in the Redundant Fan Kit, only 1 is required for system redundant function. The other one can be saved as a spare part.

Standard Features

Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Microsoft Windows Server Hyper V Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Oracle Enterprise Linux (OEL) VMware Citrix Essentials for XenServer NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/ossupport and our driver download page www.hp.com/support/ML330G6.
Graphics	Integrated ATI RN50, 64MB video standard • 16 bit color: maximum resolution of 1600 x 1200 • 32 bit color: maximum resolution of 1280 x 1024 NOTE: Maximum resolution available via HP Integrated Lights-Out 2 (iLO 2) remote console is 1280 x 1024.
Form Factor	Tower (5U) NOTE: Rack mounting available via HP Tower to Rack Conversion Tray, Universal Kit. Please see the options section in this QuickSpecs: • Square or round hole racks 24"- 36" deep, including HP Rack System /E and HP Systems • Telco racks with 3rd part option kit from Rack Solutions www.hp.com/go/rackandpower
HP Insight management software	HP Insight Foundation

Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters.

HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: www.hp.com/go/foundation.

The foundation pack includes:

- HP SmartStart
- HP Management DVD
- HP ProLiant Smart Update Firmware DVD

SmartStart version supported (minimum): SmartStart 8.25
http://www.hp.com/servers/smartstart

NOTE: In an effort to support reducing our environmental impact, the HP ProLiant Essentials Foundation Pack media will be available as a selectable option for this server at time of order of a Factory Integrated Model. This will allow customers to order the number of media kits that best meet their needs

	and eliminate receiving unnecessary duplicate media.
HP Integrated Lights-Out (iLO)	HP Integrated Lights-Out (iLO) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO functions without additional software and can be accessed from any location via a web browser. HP iLO works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit: www.hp.com/go/iLO

Intelligent Manageability

HP Systems Insight Manager
SmartStart
Redundant ROM
System Firmware Update
ROMPaq
ProLiant RBSU (ROM-Based Setup Utility)
Automatic Server Recovery-2 (ASR-2)
Dynamic Sector Repairing (with Smart Array Controller)
Drive Parameter Tracking (with Smart Array Controller)
Pre-Failure Warranty (covers processors, memory, and SAS hard drives)
Dynamic power capping (with 750W PSU)

Security

Power-on password
Setup password
Serial interface control
Power switch security
Front bezel/side access panel Lock
Padlock and Kensington lock available
Keyboard/Mouse/USB port lock

Warranty

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

NOTE: Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Optional Features

HP Insight management software	HP Insight Control	HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See www.hp.com/go/insightcontrol HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.
	HP Insight Dynamics for ProLiant	HP Insight Dynamics for ProLiant, a product option, is advanced infrastructure management software that enables IT staff to instantly adjust their environments to meet dynamic business demands by provisioning, optimizing and protecting complex infrastructure in minutes. It's a powerful toolkit, integrated-by-design, that accelerates complex technology projects and simplifies daily operations, transforming data center economics. With Insight Dynamics IT professionals can plan capacity and power continuously, balance workloads across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP StorageWorks Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location. NOTE: For more information, visit: http://www.hp.com/go/insightdynamics

Optional Features

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.

HP Enterprise Configurator

The HP eConfigure-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. http://www.hp.com/products/configurator

Service and Support

HP Care Pack Services: Packaged server and storage services for increased uptime, productivity and ROI

When you buy HP server and storage products and solutions, it's also a good time to think about what levels of support you may need. Our portfolio of service options reduce deployment and management worries while helping you get the most out of your server and storage investments. We take a holistic approach to your environment, bridging servers, blades, storage, software and network infrastructures with our packaged HP Care Pack Services for servers and storage.

Protect your business beyond warranty

When it comes to robustness and reliability, standard computing equipment warranties have matured along with technology. Good news that can also create problems stemming from depending on standard warranties designed to only protect against product defects and some downtime causes. Using a standard approach to warranty uplifts, such as HP Care Pack Services, helps reduce downtime risks and provides operational consistency for mission-critical and standard business computing.

HP Care Pack Services: Upgrading or extending standard server and storage warranties cost effectively

HP Care Pack Services offer a standard reactive hardware and software support services suite sold separately, or combined with our Support Plus and Support Plus 24 services. The portfolio also provides a combination of integrated proactive and reactive services, such as Proactive 24 Service and Critical Service. In addition with HP Proactive Select, you can acquire the specific proactive constancy and technical services. HP Proactive Select menu offers a broad set of service options that you can mix and match depending on your specific requirements. Proactive service options include offers for server, storage, network, SAN device, software, environment and education services.

HP server and storage lifecycle support services offers a full spectrum of customer care-from technology support to complex migrations to complete managed services. HP Factory Express provides customization, integration and deployment services for turnkey solutions. HP Education Services offer flexible, comprehensive training on to help your IT staff get the most out of your server and storage investments. HP Financial solutions extend innovative financing and cost-effective asset management programs-from purchase to equipment retirement.

Learn more: www.hp.com/services/servers and www.hp.com/services/storage

NOTE: Care Pack Services availability may vary by product and country.

HP Care Pack Services are sold by HP and HP Authorized Service Partners:

- Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools.
- Customers purchasing from a commercial reseller can find HP Care Pack Services at http://www.hp.com/go/lookuptool

Recommended HP Care Pack Services for optimal satisfaction with your HP product

Recommended Services

3-Year HP Hardware Support Onsite Call-to-Repair (CTR) Service, 6- or 24-hour

Provides your IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 or 24 hours of the initial service request to the HP Global Solution Center.

HP is committed to repairing your hardware within a maximum of six or twenty four hours. The benefits include:

- Improved system uptime
- Predictable repair times
- More effective IT resource planning
- Consistent level of hardware support across your multi-technology systems

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6636ENN

3-Year HP Hardware Support Onsite Service, 4-hour response, 24x7

Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged.

This service provides a trained HP service specialist to perform an installation that meets HP quality standards, for:

- Help improve or maintain system uptime
- Convenient onsite support
- Committed response time

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

- Expedited installation, with all service prerequisites met before the installation is performed
- Installation in accordance with manufacturer's specifications, enhancing the supportability of your HP-installed hardware and software
- Service delivery at a mutually scheduled time
- Allows your IT resources to stay focused on their core tasks and priorities
- Availability of an HP service specialist to answer questions during the onsite delivery of this service

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN

Optional HP Care Pack Services that will enhance your HP product experience

Optional Services

3-Year HP Support Plus 24
As an alternative to our recommended support level, for customers who need access to responsive 24x7 hardware and software support plus software updates on HP and selected third party products:

For a higher return on your server and storage technology, our 3-year combined reactive support service delivers integrated onsite hardware/software support services available 24x7x365, including access to HP technical resources, 4-hour response onsite hardware support and software updates.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EEE

3-Year HP Proactive 24
As an alternative to our recommended support level, for customers who want enhanced operational effectiveness and proactive problem identification:

Provides improved stability, availability and operational effectiveness with an integrated hardware and software support service that combines industry-leading reactive technical assistance with proactive account services, giving your IT manage support from a team of service specialists.

http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA0-1614ENUC

HP Proactive Select Service
Customer needs on demand access to consulting, technical proactive services and education courses

Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months.

http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN

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eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

Support Portal
The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: http://www.hp.com/support

HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24 X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that's been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur.

Customer Technical Training

In today's cost-conscious business environment, IT professionals, developers, consultants and users face an interesting challenge: how to keep up with the latest technologies and expand important skills while delivering profitable results on current projects. To help address this challenge, HP offers innovative training solutions that help keep you up-to-date on virtualization, server, storage, Insight Control, Citrix, Microsoft® and open source/Linux-related topics-while spending less time away from business-critical activities.

HP Services Awards

HP Technology Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction.

Additional Services Information

To learn more on HP ProLiant servers, HP BladeSystem servers and HP StorageWorks storage products, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: www.hp.com/services/proliant or www.hp.com/services/bladesystem or http://www.hp.com/hps/storage

Pre-configured Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.
NOTE: Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
NOTE: HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
NOTE: If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.
NOTE: Not all models are available in all regions. Check with your local country HP offices for availability.

Entry Models

Quad-Core Models
HP ML330T06 E5504
LFF Non Hot Plug
504055-xx1

Processor(s)	(1) Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800
Cache Memory	4MB (1 x 4MB) Level 3 cache
Memory	2 GB (1 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
Hard Drive	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD
Internal Storage	8TB LFF SAS 8TB LFF SATA
Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
Power Supply	460 Watt power supply (NHP, Non Redundant)
Fans	3 fans ship standard
Form Factor	Tower (5U)
Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Base Models

Quad-Core Models
HP ML330T06 E5506
LFF Hot Plug
504056-xx1

Processor(s)	(1) Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800)
Cache Memory	4MB (1 x 4MB) Level 3 cache
Memory	4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
Storage Controller	HP Smart Array P410/Zero memory Controller (RAID 0/1/0+1)
Hard Drive	None ship standard
Internal Storage	8TB LFF SAS 8TB LFF SATA
Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
Power Supply	460 Watt power supply (NHP, Non Redundant)
Fans	3 fans ship standard
Form Factor	Tower (5U)

Pre-configured Models

	Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Quad-Core Models HP ML330T06 E5507 LFF Hot Plug 600910-xx1	Processor(s)	(1) Intel® Xeon® Processor E5507 (2.26 GHz, 4MB L3 Cache, 80W, DDR3-800)
	Cache Memory	4MB (1 x 4MB) Level 3 cache
	Memory	4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller Hot plug advanced key (RAID 0/1/0+1)
	Hard Drive	None ship standard
	Internal Storage	8TB LFF SAS 8TB LFF SATA
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Power Supply	460 Watt power supply (NHP, Non Redundant)
	Fans	3 fans ship standard
	Form Factor	Tower (5U)
	Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Performance Models

Quad-Core Models HP ML330T06 E5620 LFF Hot Plug 600911-xx1	Processor(s)	(1) Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80W, DDR3-1066)
	Cache Memory	12MB (1 x 12MB) Level 3 cache
	Memory	6 GB (3 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller Hot plug advanced key (RAID 0/1/0+1)
	Hard Drive	None ship standard
	Internal Storage	8TB LFF SAS 8TB LFF SATA
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Power Supply	460 Watt power supply (NHP, Non Redundant)
	Fans	3 fans ship standard
	Form Factor	Tower (5U)
	Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Pre-configured Models

Country Code Key	Tower Code Key	Rack Code Key
xx=00	U.S.	U.S.
xx=01	Australia	N/A
xx=03	UK	N/A
xx=04	Germany	N/A
xx=05	France	N/A
xx=20	Brazil	N/A
xx=29	Japan	Japan
xx=37	APD	APD
xx=42	Europe	Europe
xx=AA	PRC	PRC

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
NOTE: Configure-to-order (CTO) servers must start with a CTO Chassis.
NOTE: FIO indicates that this option is only available as a factory installable option.

Step 1: Base Configuration (choose one of the following configurable models)

HP Models	HP ML330G6 CTO Chassis	504271-B21
	Includes:	
	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter Integrated Smart Array B110i SATA RAID Controller One PCI-Express x8 Gen1 (x1 speed); One PCI-Express x16 Gen2 (x16 speed); Two PCI-Express x8 Gen2 (x4 speed) Eight USB ports Tower Form Factor Keyboard 2-button Mouse	

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

HP Processors	Six-Core Processors	
	HP ML330 G6 Intel® Xeon® X5650 (2.66GHz/6-core/95W/12MB) FIO Processor Kit	601054-L21
	Quad-Core Processors	
	HP ML330 G6 Intel® Xeon® E5640 (2.66GHz/4-core/80W/12MB) FIO Processor Kit	607120-L21
	HP ML330 G6 Intel® Xeon® E5630 (2.53GHz/4-core/80W/12MB) FIO Processor Kit	601053-L21
	HP ML330 G6 Intel® Xeon® E5620 (2.40GHz/4-core/80W/12MB) FIO Processor Kit	601052-L21
	HP ML330 G6 Intel® Xeon® E5540 (2.53GHz/4-core/8MB/80W) FIO Processor Kit	535585-L21
	HP ML330 G6 Intel® Xeon® E5530 (2.40GHz/4-core/8MB/80W) FIO Processor Kit	535584-L21
	HP ML330 G6 Intel® Xeon® E5520 (2.26GHz/4-core/8MB/80W) FIO Processor Kit	535583-L21
	HP ML330 G6 Intel® Xeon® E5507 (2.26GHz/4-core/80W/4MB) FIO Processor Kit	601051-L21
	HP ML330 G6 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) FIO Processor Kit	535582-L21
	HP ML330 G6 Intel® Xeon® E5504 (2.0GHz/4-core/4MB/80W) FIO Processor Kit	535581-L21
	HP ML330 G6 Intel® Xeon® W3540 (2.93GHz/4-core/8MB/130W) FIO Processor Kit	512718-L21
	HP ML330 G6 Intel® Xeon® W3520 (2.66GHz/4-core/8MB/130W) FIO Processor Kit	512717-L21
	Dual-Core Processors	
	HP ML330 G6 Intel® Xeon® E5503 (2.0GHz/2-core/80W/4MB) FIO Processor Kit	601050-L21
	HP ML330 G6 Intel® Xeon® E5502 (1.86GHz/2-core/4MB/80W) FIO Processor Kit	535580-L21

	HP ML330 G6 Intel® Xeon® W3505 (2.53GHz/2-core/130W/4MB) FIO Processor Kit	573362-L21
	HP ML330 G6 Intel® Xeon® W3503 (2.40GHz/2-core/130W/4MB) FIO Processor Kit	573363-L21
	NOTE: Xeon E5500 DP family supports both Registered DIMMs and Unbuffered DIMMs. Xeon W3500 UP family supports only Unbuffered DIMMs.	
HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604504-B21
	NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
	HP 8GB (1x8GB) Dual Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	516423-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit	604506-B21
	NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	NOTE: For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.	
	NOTE: PC3L is a low voltage memory.	
HP Drive Cage Options	Non-Hot Plug HDD Model	
	HP SATA 5U G6 Module FIO Kit	500448-B21
	Hot Plug HDD Model	
	HP Hot Plug HDD Drive Cage Kit	487737-B21
	NOTE: Hot Plug SATA/SAS model and Non-hot plug SAS model requires a HP SATA or SAS RAID Controller.	

	NOTE: Non-Hot Plug Model only supports up to total 4 drives. NOTE: Hot plug SATA model requires HP Smart Array B110i SATA RAID controller hot plug advanced key (TC421A) and at least 1 HP HDD NOTE: To reach maximum 8 LFF Drive support, it is required to purchase 2 Hot Plug HDD Drive Cage kit and Smart Array controller 8 ports or 2x 4 ports.	
HP Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components. NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.	
	SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
	HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516830-B21
	HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516826-B21
	HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516824-B21
	NOTE: SAS non-hot plug drives require the Non-Hot Plug Internal SAS/SATA 4 port Cable kit (P/N 487734-B21) and a HP SAS/Smart Array Controller.	
	SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	458947-B21
	SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21
	HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21
	HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-B21
HP Power supplies	NOTE: Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/hppoweradvisor.	
	HP ML150G6 460 Watts Non-hot Plug Power Supply Factory Integrated Kit	500447-B21
	HP 750W Common Slot High Efficiency Power Supply Kit NOTE: The HP 750W power supply requires purchasing the Redundant Power Supply Enablement Kit (P/N 508544-B21).	512327-B21
	Power Options	
	HP 5U G6 Redundant Power Supply Enablement Kit NOTE: The Redundant Power Supply Enablement kit does not integrate any power supply. To enable full Redundancy, it requires 2 units of 750W Power supply.	508544-B21

Step 3: Choose Additional Factory Integratable Options

HP Storage Controllers	NOTE: SAS non-hot plug drives require the Non-Hot Plug Internal SAS/SATA 4 port Cable kit (P/N 487734-B21) and a HP SAS/Smart Array Controller. NOTE: HP NHP Internal SAS/SATA 4 Port Cable Kit (487734-B21) is required when adding Smart Array P410 Controller on Non-Hot Plug SATA/SAS server models.	
	HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 FIO SAS Controller	491191-B21
	HP Smart Array P410/ZM 2-ports Int PCIe x8 FIO SAS Controller	462860-B21
	HP Smart Array P410/256 2-ports Int PCIe x8 FIO SAS Controller	491195-B21
	HP Smart Array P411/256 2-ports Ext PCIe x8 FIO SAS Controller NOTE: SAS Controller supporting RAID 0/1/1+0/5.	491193-B21
	Optional Upgrades	
	HP 256MB P-series Cache Upgrade NOTE: Supported HP Smart Array P212 and P410/ZM Controllers only.	462968-B21
	HP 512MB P-Series Battery Backed Write Cache Upgrade NOTE: Supported on HP Smart Array P410 Controller and HP Smart Array P411 Controller only.	462967-B21
	HP 650 mAh P-Series Battery NOTE: To enable BBWC on the 256MB cache. NOTE: Supported on HP Smart Array P212 Controller, HP Smart Array P410 Controller, and HP Smart Array P411 Controller only. NOTE: To support RAID 5, HP P410 requires at least 256MB Cache NOTE: To support RAID 6, HP P410 requires at least 256MB Cache + Battery + SAAP or 512MB BBWC + Smart Array Advanced Pack (SAAP) license key. Smart Array P411 Controller.	462969-B21
	HP Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License NOTE: This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.	516471-B21
	HP Smart Array Hot Plug Advance Pack for B110i w/1yr 24x7 Supp Physical 1 Svr LTU NOTE: It is required to purchase at least 1 HDD when ordering the Hot Plug Advance Pack.	TC421A
HP Insight Software	HP Insight Control, No Media 1-Server License Factory-Integratable Option (FIO) including 1 year of 24x7 Technical Support and Updates	582765-B21
	HP Insight Control for Linux, No Media 1-Server License Factory-Integratable Option (FIO) including 1 year of 24x7 Technical Support and Updates	TC203A

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" or "Additional Options" section below.

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Processors	Six-Core Processors	
	HP ML330 G6 Intel® Xeon® X5650 (2.66GHz/6-core/95W/12MB) Processor Kit	603978-B21
	Quad-Core Processors	
	HP ML330 G6 Intel® Xeon® E5640 (2.66GHz/4-core/80W/12MB) Processor Kit	607122-B21
	HP ML330 G6 Intel® Xeon® E5630 (2.53GHz/4-core/80W/12MB) Processor Kit	603977-B21
	HP ML330 G6 Intel® Xeon® E5620 (2.40GHz/4-core/80W/12MB) Processor Kit	603976-B21
	HP ML330 G6 Intel® Xeon® E5540 (2.53GHz/4-core/8MB/80W) Processor Kit	512716-B21
	HP ML330 G6 Intel® Xeon® E5530 (2.40GHz/4-core/8MB/80W) Processor Kit	512715-B21
	HP ML330 G6 Intel® Xeon® E5520 (2.26GHz/4-core/8MB/80W) Processor Kit	512714-B21
	HP ML330 G6 Intel® Xeon® E5507 (2.26 GHz/4-core/80W/4MB) Processor Kit	603975-B21
	HP ML330 G6 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) Processor Kit	512713-B21
	HP ML330 G6 Intel® Xeon® E5504 (2.0GHz/4-core/4MB/80W) Processor Kit	512712-B21
	Dual-Core Processors	
	HP ML330 G6 Intel® Xeon® E5503 (2.0GHz/2-core/80W/4MB) Processor Kit	603974-B21
	HP ML330 G6 Intel® Xeon® E5502 (1.86GHz/2-core/4MB/80W) Processor Kit	512711-B21
	NOTE: Each Processor Kit includes (1) processor/(1) heatsink/ (1) Processor board. The Processor board integrated (1) processor socket and (9) DIMM slots. NOTE: When two (2) Xeon E5500 processors are installed, the system QPI will be locked at 4.8 GT/s. NOTE: Xeon E5500 DP family supports both Registered DIMMs and Unbuffered DIMMs. Xeon W3500 UP family supports only Unbuffered DIMMs.	

HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	516423-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21

Core Options

	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	NOTE: For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: PC3L is a low voltage memory.	
HP Optical Drives	HP Half-Height SATA DVD-ROM Optical Drive	447326-B21
	HP Half-Height SATA DVD RW Optical Drive	447328-B21
HP Drive Cage Options	HP 5U Hot Plug HDD Drive Cage Kit	487737-B21
	NOTE: To reach maximum 8 LFF Drive support, it is required to purchase 2 Hot Plug HDD Drive Cage kit and Smart Array controller 8 ports or 2x 4 ports.	
HP Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components. NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details. NOTE: SATA Hot Plug models require HP SAS Smart Array Controller. NOTE: SAS Non-Hot Plug and SAS Hot Plug Models require HP SAS Smart Array Controller.	
	SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
	HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516828-B21
	HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516816-B21
	HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516814-B21
	SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
	HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516830-B21
	HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516826-B21

HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516824-B21
SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507616-B21
HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507614-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	507632-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	454146-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458928-B21
SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21
HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21
HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-B21
SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	571230-B21
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	458945-B21
SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	571232-B21
HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	458947-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	
SATA Hot Plug 3.5" Midline (MDL) Solid State Drives	
HP 60GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570761-B21
HP 120GB 3G SATA LFF (3.5-inch) Midline 1yr Warranty Solid State Drive	570763-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13415_div/13415_div.html (Worldwide)	

Core Options

HP Networking	Gigabit Ethernet Adapters	
	HP NC112T PCIe Gigabit Server Adapter	503746-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
	HP NC382T PCIe Dual Port Multifunction Gigabit Server Adapter	458492-B21
	10 Gigabit Ethernet Adapters NOTE: No more than two 10GbE I/O devices are supported in a single ProLiant server. NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each adapter. NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.	
	HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
	HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	
HP I/O Expansion Options	HP iLO 2 PORT OPT KIT	514206-B21
	HP Non-Hot Plug Internal SAS/SATA 4 Port Cable Kit NOTE: SAS non-hot plug drives require the Non-Hot Plug Internal SAS/SATA 4 port Cable kit (P/N 487734-B21) and a HP SAS/Smart Array Controller.	487734-B21
	HP PCI-X Expander Kit (2 x 64-bit 100MHz PCI-X slots)	488413-B21
HP Power Supplies	NOTE: Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/hppoweradvisor.	
	HP 750W Common Slot High Efficiency Power Supply Kit NOTE: The HP 750W power supply requires purchasing the Redundant Power Supply Enablement Kit (P/N 508544-B21).	512327-B21
	Power Options	
	HP Redundant Power Supply Enablement Kit NOTE: The Redundant Power Supply Enablement kit does not integrate any power supply. To enable full Redundancy, it requires 2 units of 750W Power supply.	508544-B21
HP Cooling Options	HP 5U G6 Redundant fan kit NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.	513927-B21

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Insight Software	HP Insight Control	
	HP Insight Control, Single-Server License including 1 year of 24x7 Technical Support and Updates	452148-B22
	HP Insight Control suite, No Media, Electronic License including 1 year of 24x7 Technical Support and Updates	T9074BAE
	HP Insight Control, Electronic License for bundling with ProLiant ML/DL server, including 1 year of 24x7 Technical Support and Updates	TC278AAE
	HP Insight Control, Tracking License for bundling with ProLiant ML/DL server, including 1 year of 24x7 Technical Support and Updates	TC275A
	HP Insight Software Media Kit NOTE: Insight Software DVD media without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Insight Dynamics, HP Insight Control for Microsoft System Center, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates.	436222-B21
	NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key. NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent. NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: For additional license options please see the Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	
	HP Insight Control for Linux	
	HP Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic	TC213AAE
	HP Insight Control for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates	TC209A
	HP Insight Control for Linux, Media pack (DVD) - No licenses included NOTE: Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately.	TC208A
	NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/ic-linux (click on Download button). NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent. NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys. NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html	

	HP Integrated Lights-Out (iLO) Advanced	
	HP Integrated Lights-Out Advanced, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates	512485-B21
	HP ProLiant Essentials Integrated Lights-Out Advanced Pack, Electronic, including 1 year of 24x7 Technical Support and Updates	TA850AAE
	NOTE: This license allows 1 server to be deployed and managed via HP iLO Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. NOTE: Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent. NOTE: For additional license kits, including electronic delivery options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html	
	HP Insight Control server deployment	
	HP Insight Control server deployment Electronic License including 1 year 24x7 Technical Support and Updates	T9082AAE
	HP Insight Control server deployment 1-Server License including 1 year 24x7 Technical Support and Updates	452151-B21
	NOTE: Licenses ship without media. The Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key, and is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent. NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. NOTE: For additional license kits please see the Insight Control QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12631_div/12631_div.html	
HP Security - TPM	HP Trusted Platform Module Option Kit	488069-B21
	NOTE: The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: www.hp.com/go/TPM. NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment. NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or loosing the key could result in data loss.	
HP Storage Controllers	**SAS Controllers**	

NOTE: SAS non-hot plug drives require the Non-Hot Plug Internal SAS/SATA 4 port Cable kit (P/N 487734-B21) and a HP SAS/Smart Array Controller.	
Smart Array P800 Controller	
HP Smart Array P800/512 BBWC 2-ports Int/2-ports Ext PCIe x8 SAS Controller	381513-B21
Smart Array P212 Controller	
HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462828-B21
HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462834-B21
Smart Array P410 Controller NOTE: HP NHP Internal SAS/SATA 4 Port Cable Kit (487734-B21) is required when adding Smart Array P410 Controller on Non-Hot Plug SATA/SAS server models.	
HP Smart Array P410/256 2-ports Int PCIe x8 SAS Controller	462862-B21
HP Smart Array P410/512 BBWC 2-ports Int PCIe x8 SAS Controller	462864-B21
HP Smart Array P410/512 FBWC 2-ports Int PCIe x8 SAS Controller	578230-B21
HP Smart Array P410/1G FBWC 2-ports Int PCIe x8 SAS Controller	572532-B21
Smart Array P411 Controller	
HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller	462830-B21
HP Smart Array P411/512 BBWC 2-ports Ext PCIe x8 SAS Controller	462832-B21
HP Smart Array P411/512 FBWC 2-ports Ext PCIe x8 SAS Controller	578229-B21
HP Smart Array P411/1G FBWC 2-ports Ext PCIe x8 SAS Controller	572531-B21
Smart Array P812 Controller	
HP Smart Array P812/1G FBWC 2-ports Int/4-ports Ext PCIe x8 SAS Controller	487204-B21
Upgrade Options	
HP Mini SAS to Mini SAS 33in Cable Assembly NOTE: This cable option kit is needed to upgrade from hot plug SATA to hot plug SAS.	496014-B21
HP Hot Plug Internal SATA to Mini SAS Cable Kit NOTE: This cable needed when upgrade from non-hot plug SATA to hot plug SATA.	600732-B21
HP 256MB P-series Cache Upgrade NOTE: Supported on HP Smart Array P212 and P410/ZM Controllers only.	462968-B21
HP 512MB P-Series Battery Backed Write Cache Upgrade	462967-B21
HP 650 mAh P-Series Battery NOTE: To enable BBWC on the 256MB cache. NOTE: Supported on HP Smart Array P212 Controller, HP Smart Array P410 Controller, and HP Smart Array P411 Controller only.	462969-B21
HP 8484 to Mini SAS 33in Cable Assembly NOTE: Cable for use connecting the Smart Array P800 Controller to internal hard disk drives on select HP ProLiant G6 Servers.	591734-B21
HP 512MB Flash Backed Write Cache	534916-B21
HP 1GB Flash Backed Cache	534562-B21
HP Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License NOTE: This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP	516471-B21

	Software Technical Support Services.	
	HP Smart Array Hot Plug Advance Pack for B110i w/1yr 24x7 Supp Physical 1 Svr LTU	TC421A
	NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html (Smart Array P800 Controller) http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html (Smart Array P212 Controller) http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html (Smart Array P410 Controller) http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html (Smart Array P411 Controller) http://h18000.www1.hp.com/products/quickspecs/13558_div/13558_div.html (Smart Array P812 Controller) http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html (Smart Array Advanced Pack) http://h18000.www1.hp.com/products/quickspecs/13495_div/13495_div.html (Smart Array Hot Plug Advance Pack for B110i)	
	SAS HBA	
	HP SC08Ge 2-ports Ext PCIe x8 SAS Host Bus Adapter	488765-B21
	HP Modular Smart Array SC08e 2-ports Ext PCIe x8 SAS Host Bus Adapter NOTE: This is a 2 x4 External Port HBA NOTE: This is only approved for the HP StorageWorks P2000 G3 SAS Modular Smart Array.	614988-B21
	NOTE: Please see the HBA QuickSpecs for additional information: http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html (SC08Ge HBA) http://h18004.www1.hp.com/products/quickspecs/13651_div/13651_div.html (SC08e 6Gb HBA)	
	SCSI HBA	
	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter NOTE: Recommended HBA for SCSI tape drive connect.	412911-B21
	NOTE: Please see the following QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)	
HP Backup & Recovery Software	Data Protector Express	
	HP Data Protector Express V5.0 for 1 Server E-LTU	TC330AAE
	HP Data Protector Express V5.0 for 3 Servers E-LTU	TC331AAE
	HP Data Protector Express V5.0 for 10 Servers E-LTU	TC332AAE
	HP Basic Upgrade to Data Protector Express V5 for 1 Server E-LTU	TC333AAE
	NOTE: One of these Data Protector Express base products is required. To see available options: http://www.hp.com/go/dataprotectorexpress	

Additional Options

Tape Backup	NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media see: http://www.hp.com/go/tape. For hardware and software compatibility of HP StorageWorks tape backup products see: http://www.hp.com/go/connect.	
	Rack-Mount Tape Solutions	
	HP StorageWorks DAT 160 SCSI Internal Tape Drive	Q1573A
	DAT 160 USB Internal Tape Drive	Q1580A
	HP StorageWorks DAT 320 USB Internal Tape Drive	AJ825A
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation.	AK377A
	HP StorageWorks DAT 320 SAS Internal Tape Drive NOTE: Connection using HP P212 SAS Smart Array Controller (462828-B21) recommended.	AJ830A
	HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive NOTE: Connection using HP P212 Smart Array Controller SAS (462828-B21) recommended.	DW085A
	HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive NOTE: Connection using HP P212 SAS Smart Array Controller (462828-B21) recommended.	EH847A
	HP StorageWorks LTO-4 Ultrium 1760 SAS Internal Tape Drive NOTE: Connection using HP P212 SAS Smart Array Controller (462828-B21) recommended.	EH919A
	HP StorageWorks LTO-4 Ultrium 1840 SAS External WW Drive NOTE: Connection using HP P212 SAS Smart Array Controller (462828-B21) recommended.	EH861A
	HP StorageWorks LTO-5 Ultrium 3000 SAS Internal Tape Drive NOTE: Connection using HP P212 SAS Smart Array Controller (462828-B21) recommended.	EH957A
	HP StorageWorks LTO-5 Ultrium 3000 SAS External Tape Drive NOTE: Connection using HP P212 SAS Smart Array Controller (462828-B21) recommended.	EH958A
	HP StorageWorks 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. Connection using HP P212 SAS Smart Array Controller (462828-B21) recommended.	BL536A
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
	HP StorageWorks MSL2024 Tape Library with one LTO-5 Ultrium 3000 SAS Drive NOTE: Connection using HP P212 SAS Smart Array Controller (462828-B21) recommended.	BL537A
	HP StorageWorks MSL4048 1 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
	HP StorageWorks MSL4048 Tape Library with one LTO-5 Ultrium 3000 SAS Drive NOTE: Connection using HP P212 SAS Smart Array Controller (462828-B21) recommended.	BL538A

Additional Options

Disk Backup	NOTE: For the complete range of StorageWorks D2D Backup Systems see: http://www.hp.com/go/d2d. For the complete range of StorageWorks RDX drives and media see: http://www.hp.com/go/rdx. For hardware and software compatibility of HP StorageWorks disk backup products see: http://www.hp.com/go/connect.	
	HP StorageWorks D2D Backup Systems with Backup Data Deduplication	
	HP StorageWorks D2D2502i Backup System NOTE: 1.5TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	EJ001B
	HP StorageWorks D2D2504i Backup System NOTE: 3.0TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	EJ002B
	HP StorageWorks D2D4112fc Backup System NOTE: 9.0TB (expandable to 18.0TB) of useable network disk backup capacity. Fibre Channel SAN connected appliance. Direct server attach is not supported, requires connection via SAN fabric.	EH993B
	HP StorageWorks RDX Removable Disk Backup Systems USB	
	HP StorageWorks RDX160 Internal Removable Disk Backup System NOTE: 160GB of disk capacity per data cartridge.	AJ765A
	HP StorageWorks RDX320 Internal Removable Disk Backup System NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 320GB of disk capacity per data cartridge.	AJ767A
	HP StorageWorks RDX500 Internal Removable Disk Backup System NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 500GB of disk capacity per data cartridge.	AJ934A
	HP StorageWorks RDX750 Internal Removable Disk Backup System NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 750GB of disk capacity per data cartridge.	AW577A
	HP StorageWorks RDX 1TB Internal Removable Disk Backup System NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 1 TB of disk capacity per data cartridge.	BV847A
HP StorageWorks Options	StorageWorks SCSI HBA	
	HP U320e SCSI Host Bus Adapter NOTE: Recommended HBA for MSL SCSI Tape Library connect.	AH627A

Additional Options

HP Disk Storage Systems	MSA SAN Storage Arrays	
	HP StorageWorks 60 Modular Smart Array	418408-B21
	NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html	
	HP StorageWorks 70 Modular Smart Array	418800-B21
	NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)	
	Disk Enclosures	
	HP StorageWorks D2600 Disk Enclosure	AJ940A
	HP StorageWorks D2700 Disk Enclosure	AJ941A
	NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/13404_div/13404_div.html	
HP Uninterruptible Power Systems	HP Tower UPS	
	HP T1000 G3 UPS Models	
	HP T1000 G3 UPS, NA	AF448A
	HP T1000 G3 UPS, INTL	AF449A
	HP T1000J UPS, Japan	AF457A
	HP T1500 G3 UPS Models	
	HP T1500 G3 UPS, NA	AF450A
	HP T1500 G3 UPS, INTL	AF451A
	HP T1500J UPS, Japan	AF458A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13160_div/13160_div.html (Worldwide)	
	NOTE: For additional information on HP Uninterruptible Power Systems please go to: www.hp.com/products/ups.	
	NOTE: For additional information on sizing your server, please reference: http://www.upssizer.com	
	NOTE: Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.	

Additional Options

HP Rack Series	HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	
	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
	NOTE: The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors. CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm). CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.	
	NOTE: Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.	

HP Rack Options	HP Server Console Switches	
	HP Server console switch 0x2x8	AF616A
	HP Server console switch 0x2x16	AF617A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11834_div/11834_div.html (Worldwide)	
	HP Server Console Switch G2 with Virtual Media & CAC	
	0x2x16 KVM Server Console G2 Switch with Virtual Media and CAC	AF618A
	0x2x32 KVM Server Console G2 Switch with Virtual Media and CAC	AF619A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13475_div/13475_div.html (Worldwide)	
	HP IP Console Switch G2 with Virtual Media & CAC	
	1x1Ex8 KVM IP Console Switch G2 with Virtual Media and CAC	AF620A

Additional Options

	2x1Ex16 KVM IP Console Switch G2 with Virtual Media and CAC	AF621A
	4x1Ex32 KVM IP Console Switch G2 with Virtual Media and CAC	AF622A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13474_div/13474_div.html (Worldwide)	
	Rack Kit	
	HP Tower to Rack Conversion Tray Universal Kit	417705-B21
HP USB and SD Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 4GB SD Flash Media Kit	580387-B21
	NOTE: Blank SD media device is supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at: http://www.hp.com/go/proliantvirtualization.	
	HP 2GB USB Flash Media Drive Key	608447-B21
	NOTE: HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions.	
HP Care Pack Services	Hardware Services	
	Next Day Service, 3 Year	UM870E
	4-Hour Service, 5-Day x 13-Hour Coverage, 3 Years	UM872E
	4-Hour Service, 7-Day x 24-Hour Coverage, 3Years	UM874E
	6-Hour Call to Repair, Service, 7-Day x 24-Hour Coverage, 3 Year	UM876E
	Other Services	
	4-Hour Service, 5-Day x 13-Hour Coverage, 4 Years	UM880E
	4-Hour Service, 7-Day x 24-Hour Coverage, 4Years	UM882E
	4-Hour Service, 5-Day x 13-Hour Coverage, 5 Years	UM888E
	4-Hour Service, 7-Day x 24-Hour Coverage, 5Years	UM890E
	Support Plus	
	Support Plus, MS, 3Years	UM894E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack	

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

DDR3 memory population guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator

Some DIMM installation guidelines are summarized below:

- For servers with eighteen (18) memory slots:
  - There are three (3) channels per processor; six (6) channels per server
  - There are three (3) DIMM slots for each memory channel; eighteen (18) total slots
  - Memory channel 1 consists of the three (3) DIMMs that are closest to the processor
  - Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- If any Quad rank DIMMs are installed, all channels are limited to only 2 DIMMs per channel.
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3;6 on a 3DPC system or 1,4; 2,5; on a 2DPC system
- Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors
- If mixing DIMM voltage is a requirement, please note that the DIMMs will run at 1.5V since all 1.35V are capable of supporting 1.5V operations

DIMM slot/capacity/populated speed table										
DIMM Type	Registered DIMMS (RDIMMs)							Unbuffered with ECC DIMMs (UDIMMs)		
DIMM Rank	Single Rank (1R)	Dual Rank (2R)				Quad Rank (4R)		Single Rank (1R)	Dual Rank (2R)	
DIMM Capacity	4GB	2GB	4GB	8GB	8GB	4GB	16GB	1GB	2GB	4GB
DIMM Native Speed (MHz)	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
Voltage	LV/Reg	Reg	Reg	Reg	LV/Reg	Reg	Reg	Reg	Reg	Reg
	SLOTS THAT CAN BE POPULATED									
18 slot servers	18	18	18	18	18	12	12	12	12	12
	MAXIMUM CAPACITY (GB)									
	72	36	72	144	144	48	192	12	24	48
	POPULATED DIMM SPEED (MHz)									
1 DIMM Per Channel	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
2 DIMM Per Channel	1333*	1333*	1333*	1066	1333*	800	800	1333	1333	1333*

Memory

3 DIMM Per Channel	800	800	800	800	800	n/a	n/a	n/a	n/a	n/a

NOTES:

- PC3-10600 DIMMs have a maximum speed of 1333MHz. PC3-8500 DIMMs have a maximum speed of 1066MHz
- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, the maximum speed will be 1066MHz If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, the maximum speed will be 1066MHz
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066MHz
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz
- Maximum memory speed will also depend on the processor installed. References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

DIMM slot and configuration diagrams

Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

18 DIMM SLOTS (9 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 0	1	G	1	G	Chnl 0
	2	D	2	D	
	3	A	3	A	
Chnl 1	4	H	4	H	Chnl 1
	5	E	5	E	
	6	B	6	B	
Chnl 2	7	I	7	I	Chnl 2
	8	F	8	F	
	9	C	9	C	

Standard memory configuration (1 CPU model)

- 4GB, consisting of three (2) 2GB dual-rank PC3-10600 RDIMMs (Base model)

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; empty	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; empty	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; empty	8	F; empty	
	9	C; empty	9	C; empty	

Standard memory plus optional memory (1 CPU model)

- 60GB, consisting of two (2) 2GB RDIMMs plus seven (7) 8GB RDIMMs
  - 2x 2GB dual-rank PC3-10600 RDIMMs
  - 7x 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; 8GB DIMM	1	G; empty	Chnl 1
	2	D; 8GB DIMM	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; 8GB DIMM	4	H; empty	Chnl 2
	5	E; 8GB DIMM	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; 8GB DIMM	7	I; empty	Chnl 3
	8	F; 8GB DIMM	8	F; empty	
	9	C; 8GB DIMM	9	C; empty	

Standard memory replaced with optional memory (1 CPU model)
RDIMM maximum configuration

- 96GB, consisting of nine (6) 16GB dual-rank PC3-8500 RDIMMs

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB DIMM	2	D; empty	
	3	A; 16GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB DIMM	5	E; empty	
	6	B; 16GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB DIMM	8	F; empty	
	9	C; 16GB DIMM	9	C; empty	

UDIMM maximum configuration (1 CPU model)

- 24GB, consisting of six (6) 4GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 4GB DIMM	2	D; empty	
	3	A; 4GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 4GB DIMM	5	E; empty	
	6	B; 4GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 4GB DIMM	8	F; empty	
	9	C; 4GB DIMM	9	C; empty	

Standard memory replaced with optional memory (2 CPU model)
RDIMM maximum configuration

- 192GB, consisting of eighteen (12) 16GB dual-rank PC3-8500 RDIMMs

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB DIMM	2	D; 16GB DIMM	
	3	A; 16GB DIMM	3	A; 16GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB DIMM	5	E; 16GB DIMM	
	6	B; 16GB DIMM	6	B; 16GB DIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB DIMM	8	F; 16GB DIMM	
	9	C; 16GB DIMM	9	C; 16GB DIMM	

UDIMM maximum configuration (2 CPU model)

- 48GB, consisting of twelve (12) 2GB dual-rank PC3-10600 UDIMMs

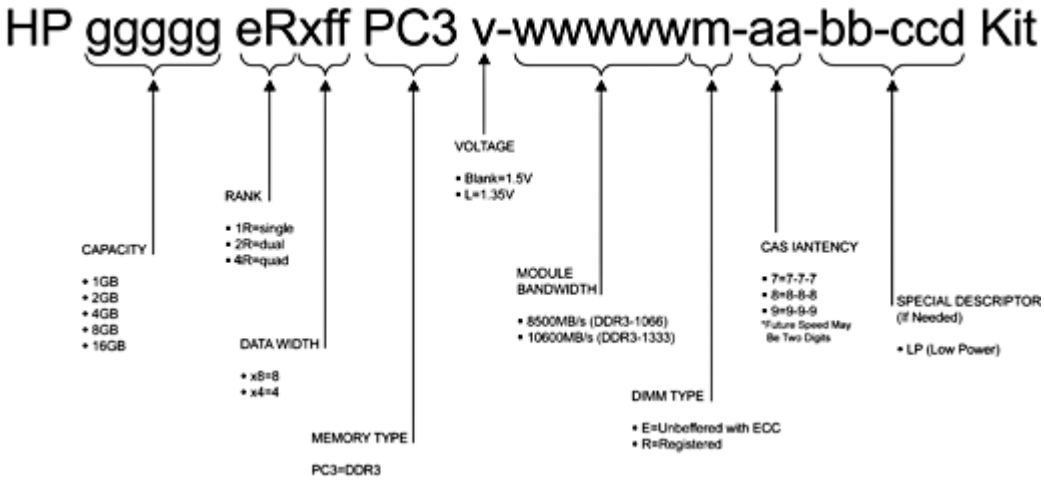
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 4GB DIMM	2	D; 4GB DIMM	
	3	A; 4GB DIMM	3	A; 4GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 4GB DIMM	5	E; 4GB DIMM	
	6	B; 4GB DIMM	6	B; 4GB DIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 4GB DIMM	8	F; 4GB DIMM	
	9	C; 4GB DIMM	9	C; 4GB DIMM	

NOTE: Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB

DDR3 memory options part number decoder

Memory

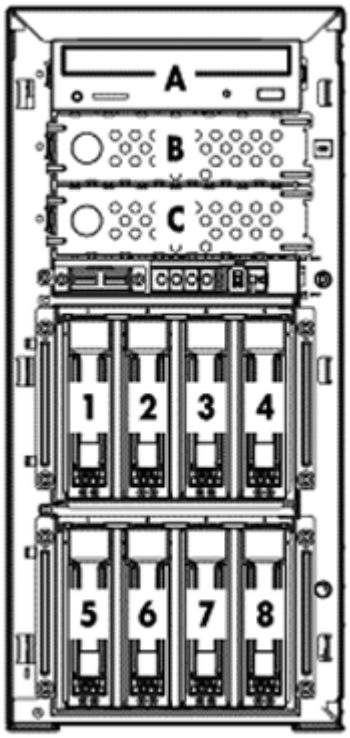


Following are memory options available from HP:

HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Quad Rank x8 PC3-8500 (DDR3-1066) Registered CAS-7 Low Power Memory Kit	500660-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	516423-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21

NOTE: For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

NOTE: PC3L is a low voltage memory.



A	Optical Drive
B,C	Removable Media Bays- 1 full-height drive or 2 half-height drives
1-4	4 x 3.5" (LFF) Hot plug or Non hot-plug SATA/SAS hard drive bays (Standard)
5-8	4 x 3.5" (LFF) Hot plug SATA/SAS hard drive bays (Optional)

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
SATA DVD-ROM Optical Drive	Up to 2	A, B	Integrated SAS Controller
SATA DVD RW Optical Drive	Up to 2	A, B	Integrated SATA Controller

Hard Drives

NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the HBA or Controller. Refer to the HBA or Controller technical specifications for details.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

NOTE: Supports up to Eight (8) SAS/SATA hard drives via 2nd Hot plug Hard Disk Drive module option kit and HP Smart Array P410 Controller.

SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K DP 450GB 6G SAS 15K DP 300GB 6G SAS 15K DP	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller

HP Smart Array P410/256 MB Controller
HP Smart Array P410/512 MB BBWC Controller
HP Smart Array P410/512 MB FBWC Controller
HP Smart Array P410/1G FBWC Controller
HP Smart Array P411/256 MB Controller
HP Smart Array P411/512 MB BBWC Controller
HP Smart Array P411/512 MB FBWC Controller
HP Smart Array P411/1G FBWC Controller
HP Smart Array P812/1G Flash Backed Cache Controller

SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K DP 450GB 6G SAS 15K DP 300GB 6G SAS 15K DP	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
2TB 6G SAS 7.2K DP 1TB 6G SAS 7.2K DP	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the HBA or Controller. Refer to the HBA or Controller technical specifications for details.

SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller

Storage

2TB 3G SATA 7.2K 1TB 3G SATA 7.2K 500GB 3G SATA 7.2K	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller HP Smart Array Hot Plug Advance Pack for B110i

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
2TB 3G SATA 7.2K 1TB 3G SATA 7.2K 500GB 3G SATA 15K	Up to 4	1-4	Embedded Smart Array B110i SATA RAID Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K 160GB 3G SATA 7.2K	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives

Storage

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 15K 160GB 3G SATA 15K	Up to 4	1-4	Embedded Smart Array B110i SATA RAID Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

SATA Hot Plug 3.5" Midline (MDL) Solid State Drives

	Quantity Supported	Position Supported	Controller
60GB 3.0G SATA SSD 120GB 3.0G SATA SSD	Up to 8	1-8	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

NOTE: To support 8 drives, the purchase of the optional HP HDD cage and possibly purchase a second SATA/SAS controller are required.
NOTE: SAS non-hot plug drives require the Non-Hot Plug Internal SAS/SATA 4 port Cable kit (P/N 487734-B21) and a HP SAS/Smart Array Controller.
NOTE: Hot Plug SATA/SAS model and Non-hot plug SAS model requires A HP SAS Controller.

Maximum Storage Capacity - SAS Models

Internal	16.0TB (8 x 2TB SAS hard drives)
Total	16.0TB (8 x 2TB SAS hard drives)

Maximum Storage Capacity - SATA Models

Internal	16.0TB (8 x 2TB SATA drives)
Total	16.0TB (8 x 2TB SATA drives)

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
D2700 Disk Enclosure	Up to 2	External	HP Smart Array P212/ 256 MB Controller
	Up to 4		HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller

Tape and Disk Backup

NOTE: For the complete range of StorageWorks tape drives, autoloaders, libraries and media, including the internal fitting models, see: http://www.hp.com/go/tape. For the complete range of StorageWorks D2D Backup Systems see: http://www.hp.com/go/d2d. For the complete range of StorageWorks RDX drives and media see: http://www.hp.com/go/rdx. For hardware and software compatibility of HP StorageWorks disk and tape backup products see: http://www.hp.com/go/connect.

	Position Supported	Controller	Controller/HBA Option Kit Part Number
HP StorageWorks SCSI Tape Drives LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160	Internal or External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21
		HP U320e SCSI Dual Channel Controller	AH627A
		NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	
HP StorageWorks SCSI Rack Mount Kits 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21
HP StorageWorks USB Tape Drives DAT 40 DAT 72 DAT 160 DAT 320	Internal or External	USB 2.0 Port	N/A
HP StorageWorks USB Rack Mount Kits 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives	Internal or External	HP Modular Smart Array SC44Ge 1-ports Int/1-ports Ext PCIe x8 SAS Host Bus Adapter	416096-B21

Storage

DAT 160 DAT 320 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 LTO-5 Ultrium 3000 LTO-5 Ultrium 3280		NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	
HP StorageWorks SAS Rack Mount Kits 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP Modular Smart Array SC44Ge 1-ports Int/1-ports Ext PCIe x8 SAS Host Bus Adapter NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	416096-B21
HP StorageWorks SCSI Tape Autoloaders, External DAT 72x10 Autoloader 1/8 G2 Autoloader	External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter HP U320e SCSI Dual Channel Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21 AH627A
HP StorageWorks SCSI Tape Libraries, External MSL2024 MSL4048 MSL8096 MSL6000	External	HP U320e SCSI Dual Channel Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	AH627A
HP StorageWorks SAS Tape Autoloaders and Libraries, External 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP Modular Smart Array SC44Ge 1-ports Int/1-ports Ext PCIe x8 SAS Host Bus Adapter NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	416096-B21
HP StorageWorks Fibre Channel Tape Libraries MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for connectivity information and the supported Fibre Channel HBAs shown in this QuickSpec.	
HP StorageWorks USB RDX Removable Disk Backup System RDX160 RDX320 RDX500	Internal or External	USB 2.0 port	N/A

Storage

RDX750
RDX1TB

HP StorageWorks D2D Backup Systems, iSCSI D2D2500i D2D4000i	External	Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.
HP StorageWorks D2D Backup Systems, Fibre Channel D2D4000fc	External	Direct server attach is not supported, requires connection via SAN fabric. See: http://www.hp.com/go/connect

Power Specifications

460W PSU Part Number, FIO	500447-B21					
Operational Input Voltage Range (Vrms)	90 to 135					
Frequency Range (Nominal) (Hz)	47 to 66 Hz					
Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	460	460	460	460	460	460
Nominal Input Current (A rms)	10	10	5	5	5	5
Max Rated Input Wattage Rating (Watts)	760	760	700	700	700	700
Max. Rated VA (Volt-Amp)	850	850	830	830	830	830
Efficiency (%)	65	65	65	65	65	65
Power Factor	0.9	0.9	0.9	0.9	0.9	0.9
Leakage Current (mA)	3.5	3.5	3.5	3.5	3.5	3.5
Maximum Inrush Current (A peak)	450	450	450	450	450	450
Maximum Inrush Current duration (mS)						

HP 750W Common Slot High Efficiency Power Supply Kit							
Part Number	512327-B21						
Input Voltage Range (V rms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage Rating	750	750	750	750	750	750	750
Nominal Input Current (A rms)	8.9	7.4	4.3	4.1	3.9	3.7	3.6
Maximum Rated Input Wattage Rating (Watts)	857	847	824	824	820	820	820
Maximum Rated VA (Volt-Amp)	894	884	859	854	854	854	
Efficiency (%)	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30						
Maximum Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	2925	2892	2812	2812	2797	2797	2797

NOTE: It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your need. The HP Power Advisor is located at: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor

System Unit	Dimensions (H x W x D) (W/O foot stand)	7.87 x 16.81 x 24.13 in (200 x 427 x 613 mm)	
	Weight (approximate)	Maximum: (All hard drives, power supplies and processors installed)	66.14 lb (30 kg)
		Minimum: (One hard drive, power supply and processor installed)	35.27 lb (16 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 to 240 VAC
		Rated Input Current	7.1 Amps (at 120VAC) to 3.5 Amps (at 240 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	852 W
	BTU Rating	Maximum	460W - 1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC) 750W - 2892 BTU / hr (at 120 VAC), 2797 (at 240 VAC) 1200W - 3530 BTU / hr (at 120 VAC), 4600 (at 240 VAC)
	Power Specifications	To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: ML330 G6 - Follow the instructions of the next screens.	
	Power Supply Output (per power supply)	Rated Steady-State Power	460 (750) W (at 100 VAC), 460 (750) W (at 200 VAC)
		Maximum Peak Power	460 (750) W (at 100 VAC), 460 (750) W (at 200 VAC) NOTE: See Power Supply Specifications tables for complete details on 460W PSU and optional 750W.
	System Inlet Temperature	Operating	50° to 95° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per 1,000 ft (1.0° C per every 305 m) above seal level to a maximum of 10,000 ft (3050 m) no direct sustained sunlight . Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C).
		Non-Operating	-22° to 140° F (-30° to 60° C)
	Relative Humidity (non-condensing)	Operating	10% to 90% relative humidity (Rh), 82.4°F (28°C) maximum wet bulb temperature, non-

		condensing.
	Non-operating**	10% to 95% relative humidity (Rh), 101.7°F (38.7°C) maximum wet bulb temperature, non-condensing.
Altitude	Operating	10,000 ft (3000m). Maximum allowable altitude change rate is 1°C per 300m.
	Non-Operating	30,000 ft (9144m). Maximum allowable altitude change rate is 1°C per 300m.
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	Idle (Fixed Disk Drives Spinning)	
	L WAd (BELS)	460W SPS (w/ non-redundant fan): 4.9B 460W SPS (w/ redundant fan): 5.1B 750W RPS (w/ non-redundant fan): 5.1B 750W RPS (w/ redundant fan): 5.3B
	L-pAm	460W SPS (w/ non-redundant fan): 31.4 dBA 460W SPS (w/ redundant fan): 33.7 dBA 750W RPS (w/ non-redundant fan): 33.4 dBA 750W RPS (w/ redundant fan): 33.8 dBA
	Operating (Random Seeks to Fixed Disks)	
	L WAd (BELS)	460W SPS (w/ non-redundant fan): 4.9B 460W SPS (w/ redundant fan): 5.2B 750W RPS (w/ non-redundant fan): 5.3B 750W RPS (w/ redundant fan): 5.4B
	L WAd (BELS)	460W SPS (w/ non-redundant fan): 31.4 dBA 460W SPS (w/ redundant fan): 33.9 dBA 750W RPS (w/ non-redundant fan): 34.6 dBA 750W RPS (w/ redundant fan): 35.2 dBA NOTE: The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.
Emissions Classification (EMC)	FCC Rating	Class B
	Normative Standards	CISPR 22; EN55022; EN55024; 47 CFR, FCC Rules and Regulations Part 15 Subpart B;VCCI Class B ITE; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3.
	NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.	

Technical Specifications

HP Smart Array B110i SATA RAID Controller (RAID 0,1,10)	**Dimensions**	N/A (embedded)
	Disk Drive and Enclosure Protocol Support	3.0 Gbps SATA
	Architecture	64-bit
	SAS Connectors	4 internal x1 SATA connectors
	Software Upgradeable Firmware	Yes. HP Smart Array hot plug Advanced Pack No Media 1-Server license including 1yr 24x7 Technical Support
	Maximum Capacity	2TB
	Memory Addressing	6GB (maximum)
	Logical Drives Supported	2 (maximum)
	RAID Support	RAID 1 (Mirroring) RAID 0 (Striping) RAID 10

HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	**Capacity**	250,059MB	
	Height*	1.028 in (26.1 mm)	
	Width	4.00 in (101.6 mm)	
	Depth*	5.787 in (147.0 mm)	
	Interface	Serial ATA	
	Transfer Rate (Maximum)	3Gb/s	
	Native Command Queuing	N/A	
	Seek Time (typical reads, including settling)	Single Track	1.0 ms
		Average	<8.5 ms
		Full-Stroke	17.0 ms
		Rotational Speed	7,200 rpm
	Physical Configuration	Bytes/Sector	512
		Logical Blocks	488,397,168
	Operating Temperature	41° to 131° F (5° to 55° C)	

* Maximum drive dimension

Technical Specifications

Embedded NC326i PCI Express Dual Port Gigabit Server Adapter	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Controller	BCM5715C	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.